EXHIBIT 5

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS

In re: Credit Suisse-AOL Securities Litigation | Civ. Action No. 02-12146-NG

REBUTTAL REPORT OF SCOTT D. HAKALA, PH.D, CFA

I.   Summary

1. This is a response to the Expert Report of Rene M. Stulz dated May 1, 2008 (the
"Stulz Report") as corrected on July 8, 2008 and the Expert Report of John Deighton
dated May 1, 2008 (the "Deighton Report").   I incorporate by reference my prior
declaration on market efficiency dated February 28, 2007, my rebuttal declaration dated
June 27, 2007 and my expert report dated March 4, 2008 ("Hakala Expert Report").
These three documents set forth most directly the analyses I performed and the sound,
scientific and reasoned bases for those analyses and conclusions.   In this report, I first
discuss faulty assumptions and conclusions of the Deighton Report.   Next, I discuss the
errors, misrepresentations, omissions and misconceptions identified in the "seven"
opinions in the Stulz Report (pp. 2-9).   Finally, to the extent that these "seven" opinions
actually contain duplicative statements, are over-lapping, and contain a number of
implicit criticisms within them, I then address by subject the various aspects of my
analyses in the context of Professor Stulz's criticisms in two broad subject areas: (i) event

study methodology; and (ii) interpreting the event study analysis to estimate inflation per share and damages.

II.   Response to the Deighton Report

2. Professor Deighton opines: (i) that "the market was already well aware that the traditional advertising market was in decline and that it could have negative effects on AOL" and (ii) that "it was reasonable to be optimistic about AOL's prospects" during the period of January 2001 through September 2001.[1] In reaching his opinions, Professor Deighton assumed, as instructed by counsel, "that Ms. Martin's observations referred to traditional advertising (rather than online advertising)."

3. In my opinion, Professor Deighton's assumption is flawed, and because this assumption serves as a critical premise to his opinions, his opinions are incorrect. Based on my reading of the record, I conclude that Ms. Martin's observations reflected in internal emails with Mr. Kiggen are that the decline in the ad market was going to significantly impact all ad-driven segments of AOL, not just the traditional advertising-driven segments of the Time Warner side of the business.[2]

4. With respect to his first opinion, it is irrelevant that some market participants were generally aware or concerned that the declining ad market "*could* have negative effects on AOL" – the allegation is that Mr. Kiggen's and Ms. Martin's internal analyses projected that it *would*, and that it would impact AOL substantially enough to cause a miss in the Company's revenue and EBITDA targets. Since many analysts and investors

---

[1] Deighton Report ¶¶ 9-10.

[2] See, for example, an email dated August 7, 2001, in which Ms. Martin said that "The ad environment is getting worse, not better and AOL isn't immune to their business model in the ad-driven segments." (Watters Dep. Ex. 11). When Ms. Martin was questioned at her deposition about what entity she was referring to with respect to the "ad-driven segments," Martin testified that she was referring to "the entire AOL/Time-Warner corporate entity." (Martin Dep. Tr. 313:14-17).

believed that AOL could achieve these targets (as set forth in the Stulz Report and in Stulz's prior declaration in 2007), a statement by the Defendants that the revenue and EBITDA targets were unlikely to be met by AOL would have materially altered the "mix" of information, as demonstrated by the analyses of the impacts of analyst statements in the Hakala Expert Report.

5.   Additionally, Professor Deighton's second opinion, concerning whether an analyst could reasonably be more optimistic about AOL's prospects than Ms. Martin, is not helpful in answering the question in this case which is whether CSFB, Mr. Kiggen and Ms. Martin misrepresented and omitted the negative, material information they had concerning AOL and its financial prospects.

III.   Response to the Stulz Report Opinions

Stulz Opinion 1

6.   Professor Stulz's Opinion 1, that the Credit Suisse First Boston ("CSFB") Analyst Reports did not impact AOL's stock price, is invalid on multiple grounds and is inconsistent with the observed actions of CSFB, its analysts and AOL. First, contrary to his assertion, both of CSFB's analysts covering AOL were among the most highly respected in the industry: Mr. Kiggen and Ms. Martin were both *Institutional Investor* ranked analysts, and Mr. Kiggen was touted as a "rock star" in the internet sector and as one of the "axes" on AOL's stock.[3] Second, CSFB was one of the most active sell-side analyst firms in issuing reports and covering AOL during the period from January 2001 through October 2001.   Given this, one may question why CSFB would expend considerable time and resources in generating and issuing research reports on AOL if these reports were not important to CSFB's customers (who are primarily large

---

[3] See Quattrone Dep. Exs. 15 and 16.

institutional investors) and had no market impact. Third, CSFB reports that were mere reiterations of prior statements and commentary on the news would not be expected to cause statistically significant stock price impacts but would help maintain an already inflated stock price. Thus, Professor Stulz creates a test of market impact that is meaningless and fails to scientifically establish the conclusion he asserts.

7. In an efficient market, a stock price will respond to new information bearing on share value, including influential analyst reports in which the analyst materially alters his/her prior opinion or otherwise provides new information bearing on share value. Although I disagree with Professor Stulz's test of market impact, it is evident that when CSFB actually issued material changes in its opinions and/or issued unique commentary in analyst reports on media companies, those reports, in fact, had an impact on company share prices on September 19, 2001 and at other times. Professor Stulz ignores the apparent statistically significant positive impact of the analyst report and commentary published by CSFB on February 5, 2001, and similarly refuses to acknowledge the positive impact of CSFB on AOL's share price in combination with another analyst report on September 19, 2001.

8. Finally, one accepted method of testing for impact is to look for "equivalent disclosures" and equivalent events. The simple fact is that other analyst reports that issued positive and negative ("corrective") changes in opinions and commentary related to and equivalent to the alleged fraud in the case generally caused statistically significant stock price impacts on AOL's share price in the relevant time period (January 2001 through July 2002) after controlling for all other significant news and information events and market and industry forces. Professor Stulz does not appear to dispute or contest this

point, either in general with respect to analyst reports or specifically in this case. To assert that the CSFB reports had no impact, thus, ignores the reality that analyst reports altered the "mix" of information regarding AOL between January 2001 and July 2002 and, thus, impacted the share price of AOL. Further, as one of the major brokerage firms and most active in reporting on AOL, CSFB had an impact in maintaining AOL's inflated share price by failing to disclose known information and by maintaining inflated revenue and EBITDA targets that were not achievable by AOL.

Stulz Opinion 2

9.   Professor Stulz's second opinion that certain of my assumptions are flawed is itself flawed for a number of reasons. Professor Stulz's conclusion is chiefly based on the contrary assumptions he was instructed by defense counsel to make, as Professor Stulz states: "Dr. Hakala's analysis and conclusions are severely flawed because they depend on several incorrect assumptions ***that counsel for CSFB has advised me are not supportable and contradicted*** by the facts developed in discovery and/or by reasonable economic analyses."[4] Thus, Professor Stulz conveniently ignores and disregards much of the evidence cited in my expert report in favor of the assumptions defense counsel instructed him to make. At best, his criticisms are circular and amount to the assertion that we should believe that there is no liability in this case based on the assurances of defense counsel. In any event, disagreements over assumed facts do not make my opinions wrong and his right: these are issues for a judge and/or jury to decide.

10.   To the extent that Professor Stulz suggests that Ms. Martin's negative views were not shared by Mr. Kiggen and there was nothing wrong with publishing the joint Kiggen-Martin reports because Mr. Kiggen had final authority to do so, it should be noted that,

---

[4] Stulz report ¶ 5(b). See also, ¶ 5(b)(i) and 5(b)(iii).

according to the Standards of Professional Practice of the CFA Institute, CSFB had a duty to disclose the fact of Ms. Martin's dissenting opinion and could not publish AOL reports using Ms. Martin's excellent reputation as an analyst to bolster the weight of those reports between January and September 2001.

11. Professor Stulz's argument is based on the improper assumption that knowledge and information is a zero-one proposition with no uncertainty. In the real world, there is a "mix" of information. The issue in this case is whether CSFB materially and improperly altered the mix of information in the market by publishing analyst reports which misrepresented and omitted negative information and concerns bearing on AOL's share value within its possession. By considering the impact of equivalent analyst disclosures, the preponderance of the statistical evidence demonstrates that a reduction in CSFB's revenue and/or EBITDA targets and/or publication of information in its possession regarding accounting issues and layoffs would have had a significant negative effect on AOL's share price. That is the point my expert report establishes and Professor Stulz ignores.

12. Contrary to Professor Stulz's and Professor Deighton's assertions,[5] I did not assume that Ms. Martin's concerns related only to Internet advertising. Rather, as reflected by the record, I concluded that they related to all media advertising and a number of AOL's lines of business and AOL as a whole, (including AOL's overall revenue and EBITDA projections).[6] Any analyst commentary that was equivalent to

---

[5] Stulz Report pp. 11-12; Deighton Report pp. 3 and 5.
[6] See, e.g., Wang Dep. Ex. 1 (Ms. Martin suggests lowering price target for the combined company); Watters Dep. Ex. 13 (Ms. Martin states that investors may read her AOL analysis "to imply that AOL's reported EBITDA is not honest"); Watters Dep. Ex. 11, (Ms. Martin states, "The ad environment is getting worse, not better and AOL isn't immune to their business model in the ad-driven segments."); Martin Dep. Tr. 313:14-17, (stating that with respect to the "ad-driven segments" referenced in Watters Dep. Ex. 11, Ms. Martin was referring to "the entire AOL/Time-Warner corporate entity.");

expressing those concerns (such as the Lehman Brothers report on March 21, 2002), would be appropriate to consider. Indeed, to the extent the March 21, 2002 Lehman Brothers analyst report expressed a more limited concern with respect to a single business unit, the impact was less than would have occurred had Ms. Martin's concerns regarding a number of lines of business been published.

13. Additionally, Professor Stulz argues that disclosure of Ms. Martin's concerns regarding the advertising downturn could not have impacted AOL because the market already knew of those concerns and had incorporated them into AOL's share price.[7] This argument is based on Professor Stulz's faulty assumptions discussed above, and his overly-simplistic view of the information conveyed and function performed by analysts. The fact that the market may have had some general concerns about the strength of media and online advertising in the first half of 2001 does not mean that CSFB's reports supporting AOL's guidance did not distort AOL's price, and, further, does not mean that the lowering of revenue and EBITDA targets by CSFB would not have corrected that distortion or altered the "mix" of information. The perfect counterexample to Professor Stulz's argument can be seen in the market's response to the disclosure by AOL on July 18, 2001 of disappointing results due to lower-than-expected advertising revenues, and the response to numerous negative analyst reports reiterating AOL's disappointment and processing the significance of that information on the following day, July 19. As my event study shows, there were statistically significant price responses to the news on both of these days. Thus, there can be additive value in analyst evaluations, beyond the mere reiteration of a company's results or other public information. This bolsters the evidence

---

[7] Stulz Report pp. 13-14

that CSFB lowering its EBITDA and revenue targets for AOL in the first half of 2001 would have caused a substantial negative impact on AOL's share price.

14. Finally, to the extent Professor Stulz's event study analyses were less rigorous than the analyses I performed and are "statistically" dominated by my analyses,[8] his opinions are less "scientific" and incapable of supporting his claim that my opinions are "speculation."

Stulz Opinion 3

15. Opinion 3 in the Stulz Report, which states that my approach to determining the impact on AOL's share price is incorrect and without scientific basis, is similarly invalid. My event study and expert report demonstrate that uniquely positive analyst reports and commentary on AOL led to statistically significant positive stock price movements with an estimable average impact, and that uniquely negative analyst reports and commentary on AOL led to statistically significant negative stock price movements with an estimable average impact. The use of comparable companies and events to scientifically establish the likely effect of an adverse disclosure is and has been frequently used by experts in event study analyses and in securities litigation.

16. Contrary to Professor Stulz's assertion, my analyses did not include an "arbitrary collection" of non-CSFB analyst reports. In fact, my analyses were based on a thorough review of all the analyst reports I could obtain on AOL from January 2001 through July 2002 and I sought to specifically isolate the impacts of analyst reports that issued positive guidance, as well as the impacts of analyst reports that issued negative guidance, from other significant news and information that might have affected AOL's share price.

---

[8] This was discussed in my prior opinions and is further discussed in this declaration with academic support. Specifically, the additional events controlled in my event study improve the "goodness-of-fit" of the regression analysis by a statistically significant amount, as demonstrated by an F-test.

Rebuttal Report of Scott D. Hakala, Ph.D., CFA   *8*
CONFIDENTIAL

There was nothing arbitrary about performing this comprehensive analysis. Furthermore, this is exactly equivalent to Professor Stulz considering published studies of the impact of analyst reports on stock prices in general and his analysis of CSFB's opinions relative to the opinions of other analysts.[9] I also did not "ignore" the CSFB reports, as Professor Stulz claims. In fact, I specifically considered each CSFB report in the context of when it was issued and what it said (such as whether there was a material change in revenue or EBITDA forecasts not already factored in by the news, whether the opinions significantly altered CSFB's prior opinions, and whether and to what extent there was confounding information).

17. In performing my analyses of the impact of analysts' statements, I focused primarily on days with material analyst commentary where other information disclosed was, by itself, relatively neutral. Contrary to the assertion in the Stulz Report, August 13, 2001 was not included as a "clean" analyst day in the analysis of the impact of changes in analysts' earnings expectations, price targets and recommendations on AOL's share price, but was, instead, indentified with the layoff impact issue. With respect to October 17, 2001, news reports clearly attributed the decline in AOL's share price to the Merrill Lynch report and not the earlier earnings release, (which was viewed as expected and neutral in its impact), and Professor Stulz fails to show that removing October 17, 2001 would have significantly altered the conclusions.

18. Additionally, I dispute Professor Stulz's criticism of the inclusion in the analysis of the February 20, 2002 analyst report by Lehman Brothers. Its inclusion demonstrates the effect on AOL's stock price of an influential analyst changing her rating from "buy" to "market perform" as well as lowering revenue and EBITDA guidance due, in part, to

---

[9] Declaration Rene' M. Stulz, April 27, 2007, pp. 20-23 at ¶¶39-42.

AOL's poor advertising revenues, and this directly corresponds to plaintiffs' allegation that CSFB fraudulently overstated revenue and EBITDA guidance for AOL and failed to disclose internal analyses that AOL would be significantly impacted by the decline in the advertising market.   Additionally, the assertion (Stulz Report p. 30) that the Lehman Brothers report on February 20, 2002 did not contain new information but merely repeated statements from a prior report on January 31, 2001 is simply not true, as a review of both reports easily reveals, and is belied by the stock price impact of the report and the numerous published news articles that attributed the decline in AOL's share price to the February 20, 2002 Lehman Brothers analyst report.

19. An "equivalent" disclosure or event analysis looks at the impact of equivalent, not identical, statements made by analysts and the impact on AOL's share price at the time they were made. For this purpose, an April 8, 2002, analyst report revising revenue and EBITDA forecasts for AOL downward for 2002 and 2003 is equivalent to a February 2001 report that similarly lowered AOL's revenue and EBITDA targets for 2001 and 2002.

20. Professor Stulz's general criticism of the inclusion in my analysis of days upon which multiple analyst reports were published ignores the standards I applied in including such days and is without merit. In my analysis, days with multiple analyst reports were included when: (i) one of the reports was clearly positive or negative and the other(s) was (or were) relatively neutral or (ii) both (or all) reports contained similarly positive or negative statements. These events should be included in the analysis because they illustrate market impact.

21. Finally, the specific criticism that March 14, 2001 should have been included in the analysis, (Stulz Report p. 31), completely ignores the event study results that found that confounding positive comments by Mr. Blodget caused AOL's share price to rise and offset the more negative Merrill Lynch report.

Stulz Opinion 4

22. Opinion number 4 of the Stulz Report, attacking my findings concerning loss causation, resorts to the use of pejorative terms without dealing with the substance and reasoned logic of the opinions I provided. The basic concept of loss causation I applied in this case was to study the impact of the "revelation" of the "relevant truth." In this case, there were three core relevant truths: first, given current advertising market conditions, AOL could not reasonably achieve its forecast revenue and EBITDA targets for 2001; second, CSFB knew of internal accounting problems at AOL and that AOL had terminated employees over those issues in the first half of 2001; and, third, AOL had "undisclosed" layoffs of "medium severity." Loss causation can be shown when those relevant truths are revealed, or, alternatively, when the undisclosed and/or understated risks materialize. Under this formulation of loss causation, loss causation occurs as: (i) AOL fails to achieve and must lower its revenue and EBITDA targets progressively over time and other analysts make statements consistent with the statements CSFB should have disclosed; (ii) news begins to reveal the existence of accounting issues known to CSFB but not first identified until July 2002; and (iii) news regarding the layoffs begins to leak into the market in August 2001. Professor Stulz offers no citations to any authority in support of his claim that such a theory of loss causation is "severely flawed."

23. Professor Stulz's criticisms of specific loss causation days (pp. 33-37) are largely invalid, immaterial, and ignore the overall context of the estimation of damages. For example, while I had principled reasons for including March 12, 2002 as an event day for consistency in capturing analyst upgrades and downgrades, adding or removing March 12, 2002 from the list of curative events results in no significant change in the analysis. Additionally, I find the assertion by Professor Stulz that the February 5, 2001 report by CSFB on AOL is a negative event to be completely at odds with a fair reading of the report and the resulting stock price impact. It is clearly a positive report and recommends AOL to investors, notwithstanding the report mentioning investor concerns regarding advertising growth.

24. Similarly, Professor Stulz's arguments with respect to the advertising events are wrong (pp. 34-37). First, Professor Stulz's view that individual statistical significance is required for an event to be included in the analysis is explicitly rejected in the academic literature.[10] As long as the set of events, as a group, is statistically significant, then individual events need not be statistically significant in order to be included in the analysis. Furthermore, Professor Stulz's view of statistical significance is biased by his incomplete intervention analysis, as is discussed in my prior reports and will be discussed further, below. Second, I included both positive and negative relevant events in my analysis by design. That is the appropriate method for correctly estimating inflation per share over time. Including only the negative, curative events would result in an incomplete analysis. Finally, if one focuses only on those events that had some minimum level of significance, as Professor Stulz suggests, the statistical significance of the

---

[10] This point was made in my expert report on p. 32 at ¶34. See, also, Kennedy, *A Guide to Econometrics*, Fifth Edition, 2003, pp. 409 and 413 (for variables chosen *a priori* it is better to be overinclusive using a t-statistic threshold of, say, 1.0 from a reliability and precision perspective).

remaining events increases and damages are largely unaffected, as shown in the Exhibits
B-1, C-1 and C-1a as Limited and attached to this rebuttal report.

Stulz Opinion 5

25. Opinion number 5 of the Stulz Report, concerning the supposed flaws in my
assumptions and analyses related to the allegations of undisclosed layoffs and accounting
irregularities, is largely duplicative, is addressed in my expert report and also previously
addressed herein.

26. With respect to the layoff issue, it is my understanding that the layoffs that CSFB
was informed of in certain July 10-11, 2001 emails were more widespread than Professor
Stulz suggests (i.e.; they were of "medium severity"), and that CSFB knew about this
information earlier in time and knew that AOL did not intend to disclose this information
to investors. Furthermore, based on a review of contemporaneous news and press
releases following the July 11, 2001 information, it appears that news of "medium
severity" layoffs at AOL did not enter the market until August 2001. As such, the
leakage of the relevant truth (of AOL layoffs) would logically be the revelation of the
rumors of layoffs on August 13 and 14, 2001 and the loss causation link is obvious. The
loss causation solely for the layoff issue connects the date July 12, 2001 (the first date
CSFB should have allegedly disclosed this information) with the decline in AOL's share
price on August 13, 2001 (consistent with leakage, I used the first leakage event and
limited the damages accordingly in order to be conservative).

27. Similarly, the accounting irregularities known to CSFB suggested the existence of
an internal investigation at AOL and the termination of employees for known accounting
improprieties. This information was not revealed until July 2002 and was denied

affirmatively by AOL until after the close of trading on July 24, 2002. Any suggestion

that the market knew this information prior to July 2002 based on some knowledge about

a relationship between AOL and PurchasePro.com has no support in the vast amount of

information I reviewed. Knowing something about a relationship does not mean that one

knows all the relevant information or that the subject company, AOL, was involved in

and concealing known accounting improprieties. The fact that the first intimations of this

information appeared on July 18 and 19, 2002, a year later, does not negate loss

causation.   At no time did AOL admit to any accounting improprieties or to the

investigation that implicated AOL (not just PurchasePro.com) until after July 24, 2002.

Stulz Opinion 6

28. Opinion number 6 criticizing my damages estimates is not really one opinion but,

rather, a series of assertions/criticisms with minimal or no academic or logical support.

Professor Stulz's criticisms, especially with respect to my event study analyses, are

scientifically invalid, provably false, contradicted by academic literature and/or

immaterial to the ultimate conclusions of the analysis.

29. First, Professor Stulz's criticism of the percentage backcasting approach as

"unscientific" is meritless and unsupported. The backcasting approach has been widely

accepted by experts in the field and is perfectly consistent with scientific principles. The

application of the event study to determine inflation per share and to estimate damages

per share applied in this case is the generally accepted and commonly employed practice

of both plaintiff and defense experts and is recommended in a number of widely cited law

review articles written by academic economists on the subject over the past 18 years.[11] In

---

[11] Cornell and Morgan, "Using Finance Theory to Measure Damages in Fraud on the Market Cases," *UCLA Law Review*, June 1990, pp. 899-900 (explicitly uses the backcasting method and percentage, not dollar

fact, Professor Stulz's criticism of this methodology disregards the published literature on this subject and offers no sound, scientific basis of criticism, but rather, is in direct conflict with methods recommended by Professor Stulz's peers.

30. Similarly, the use of percentage changes in stock prices to model stock price movements is standard and is economically and conceptually correct.[12] I have discussed this at length in my expert report. The concept that "market and industry" forces can interact with the alleged fraud and will cause the inflation in the stock price to vary in dollar terms over time (even in the absence of a corrective event) has long been acknowledged in the academic literature and by numerous courts.[13]

31. The most troubling part of Professor Stulz's discussion is his apparent criticism of the concept of a "jump-diffusion" process. He falsely implies that this concept is only used in option pricing but, otherwise, not widely used. In fact, as noted in my expert report, numerous academic studies have demonstrated that stock prices generally are best described by a process where the stock price moves in small increments most of the time (diffusion process) and then it experiences sudden jumps of varying magnitude whenever a material change in information occurs that alters investors' expectations (jump process).[14] Contrary to Professor Stulz's assertion that these jumps are "rare," they are,

---

movement, to create a true value line); Koslow, "Estimating Aggregate Damages in Class Action Litigation Under Rule 10b-5 for Purposes of Settlement," *Fordham Law Review*, April 1991, pp. 819-825 (recommends working backwards from the corrective events and uses percentage method consistent with Cornell and Morgan); Finnerty and Pushner, "An Improved Two-Trader Model for Estimating Damages in Securities Fraud Class Actions," *Stanford Journal of Law, Business and Finance*, 2003, pp. 218-221 (discusses adjusting the corrective events over time for a "comparable-stock index that recognizes both industry and market-wide influences" and adjusting for "firm-specific factors that can be directly attributed to company announcements that are not related to the fraud" using the backwardization approach based on percentage returns, not absolute dollar changes).

[12] *Supra*, footnote 10.

[13] See footnotes 48, 49 and 50, *infra*, for academic references and case citations.

[14] Nimalendran, "Estimating the Effects of Information Surprises and Trading on Stock Returns Using a Mixed Jump-Diffusion Model," *Review of Financial Studies*, Fall 1994, pp. 451-469, states, "I find that for

in fact, quite common in the intraday trade data and in the daily trade data and an important aspect of modeling stock price movements.[15] Furthermore, the fact that the diffusion process is widely recognized and widely used to model stock price movements over time suggests that percentage returns and percentage changes, not dollar changes, should be used to translate event effects at one point in time to another point in time.[16] Thus, not only are the statements by Professor Stulz (pp. 42-47) regarding the percentage inflation analysis and the empirical fact of stock prices exhibiting jump-diffusion processes wrong, but, given the substantial academic literature on these two issues, his

---

more than 93 percent of the firms in our sample the mixed jump-diffusion model is statistically superior to the pure diffusion model in describing stock returns."

[15] Nimalendran, "Estimating the Effects of Information Surprises and Trading on Stock Returns Using a Mixed Jump-Diffusion Model," *Review of Financial Studies*, Fall 1994, pp. 451-454, 461, 468, and 469, states, "Event studies are used to evaluate the economic impact of specific events. Traditional approaches analyze the abnormal returns around the announcement dates to determine the economic impact on securities. In addition, hypotheses tests are based on statistics derived under the assumption that returns are normally distributed. However, many researchers have documented that the probability distribution of daily stock returns deviate substantially from normality, and the price path consists of significant discrete jumps. Incorrectly modeling the underlying price process may lead to inconsistent test statistics and biased inferences. In addition to the incorrect specification of the underlying process for stock prices, the standard framework which looks at only the abnormal returns around announcements ignores the economic effects of trading by informed agents prior to the announcements. Previous studies that use cumulative abnormal returns pool both the announcement effects and trading effects and lead to loss of information and inefficient estimators." *See*, also, Ryan and Taffler, "Are Economically Significant Stock Returns and Trading Volumes Driven by Firm-specific News Releases?" *Journal of Business Finance & Accounting*, Vol. 31(1) & (2), January/March 2004, pp. 49-82 (most of the variance in stock prices is explained by identified company-specific news events and such events are relatively frequent over time); Alexander, *Market Models*, 2001, pp. 66-67, 286-287, 320-322, 430-431, and 440-442 (discusses the use of the natural log transformation to capture the diffusion process and events to control for jumps in stock prices at specific points in time); Franses, *Time Series Models for Business and Economic Forecasting*, 1998, pp. 128-130 (discusses the need to control for sudden changes in stock prices); Tsay, *Analysis of Financial Time Series*, 2002, p. 16 (shows returns based on daily log returns and percentage returns) and p. 244 (discusses a "jump diffusion model proposed by Kou (2000)" to model stock price movements).

[16] Cornell and Morgan, "Using Finance Theory to Measure Damages in Fraud on the Market Cases," *UCLA Law Review*, June 1990, pp. 899-900; Koslow, "Estimating Aggregate Damages in Class Action Litigation Under Rule 10b-5 for Purposes of Settlement," *Fordham Law Review*, April 1991, pp. 819-825; Alexander, "The Value of Bad News in Securities Class Actions," *UCLA Law Review*, 1994, pp. 1426-1427; Finnerty and Pushner, "An Improved Two-Trader Model for Estimating Damages in Securities Fraud Class Actions," *Stanford Journal of Law, Business and Finance*, 2003, pp. 218-221 (discusses adjusting the corrective events over time for a "comparable-stock index that recognizes both industry and market-wide influences" and adjusting for "firm-specific factors that can be directly attributed to company announcements that are not related to the fraud" using the backwardization approach based on percentage returns, not absolute dollar changes).

decision to criticize the concepts and methods I used to model stock price movements and translate them into inflation per share violates the "scientific" process.

32. My conclusion that CSFB inflated the share price by publishing the alleged fraudulent and misleading information was not "baseless," as Professor Stulz claims. My conclusion was based on the results of my event study, which shows that when the information CSFB misrepresented and omitted was finally disclosed to the market, AOL's stock price declined by statistically significant amounts. Additionally, on at least two occasions within the class period, CSFB made positive statements which caused AOL's share price to increase relative to its peers. On February 5, 2001 and September 19, 2001, CSFB issued statements distinguishing AOL and certain performance risks applicable to AOL from those applicable to other media companies. Further, although the September 19, 2001 CSFB report lowered its EBITDA guidance for AOL, that reduction was less than was anticipated in the wake of the turbulence of September 11th.

33. Further, the weights I employed in assessing damages were specifically calculated based on the scientific analyses I performed. There is nothing "arbitrary" in performing such calculations to estimate damages using a reasonable and conservative estimate of the impact of CSFB's alleged fraud on AOL's share price.

34. Professor Stulz ignores extensive literature in the field of statistics recommending intervention analyses and recommending each step and aspect of the analyses I performed in this case.[17] To the extent that my methodology is based on tried and true methods set forth in various texts on statistics and consistent with sound, recommended statistical

---

[17] Likewise, Professor Stulz ignores the statistical literature that clearly demonstrates that his implementation of the intervention analysis methodology was incomplete and, therefore, biased because it failed to identify and control for known significant company-specific news events during the event study period.

Rebuttal Report of Scott D. Hakala, Ph.D., CFA   *17*
CONFIDENTIAL

practice,[18] the criticisms of Professor Stulz call into question his familiarity with a number of developments in the field of statistical theory and methodology and his unwillingness to actually test my more extensive implementation of intervention analysis against his more limited and biased implementations of the intervention analysis method.

35. Finally, Professor Stulz tries to suggest that some adverse inference should be drawn from minor changes in the various event analyses I have performed with respect to AOL Time Warner's share price movements across different reports covering different time periods and performed for different purposes. This, of course, ignores the fact that the Class Period and loss causation analysis in the original AOL Time Warner securities litigation ranged from 1999 through August 2002. That long time period necessitated a different formulation of the model. Additionally, the original event study in the AOL Time Warner case was preliminary in nature, performed prior to discovery, and did not focus specifically on the impact of analyst reports on AOL's share price. Thus, the changes made to my analyses for estimating inflation per share and damages in this case were intended to focus the analysis on the relevant time period for this case, January 2001 through July 2002, with specific focus on the impact of unique (or unexpected) changes in analyst guidance and commentary on AOL's share price over that relevant period of time. By focusing more intensively on analyst reports, commentary and the relevant time period, the event study analysis in my expert report in this case is more specific to the issues in this case and yields more precise and reliable estimates.

Stulz Opinion 7

---

[18] See, for example, Kennedy, *A Guide to Econometrics*, Fifth Edition, 2003, for a text that discusses each and every aspect of the statistical analyses I performed and the concepts I employed in my analyses, including the use of observation-specific dummy variables.

36. Opinion number 7 of the Stulz Report is duplicative of the prior opinions. The frequent use of descriptive terms such as "arbitrary," "scientific basis," and "speculative" throughout the Stulz Report is improper, especially given that he repeatedly ignores the reasoned bases, factual foundations cited, and scientific support provided in the numerous footnotes in my expert report.

IV.   Additional Criticisms of the Stulz Report

37. Notwithstanding its length, the Stulz Report largely repeats many of the same arguments he made in his prior declaration dated April 26, 2007, and fails to properly acknowledge or address the information, rationale and academic references set forth in the Hakala Expert Report. To the extent Professor Stulz's analyses and conclusions (Stulz Report ¶¶5, and 8-31) are based on rejecting the factual allegations of the Plaintiffs as assumed in the Hakala Expert Report and are contrary to the factual information I reviewed and/or ignore the substance of the fraud as alleged, then they are not proper criticisms of my analyses and conclusions in that they assume away much of the liability and are based on factual issues which are in dispute.

38. To the extent Professor Stulz has repeatedly made assertions in his expert report without sound scientific support and refuses to acknowledge published, peer-reviewed articles and texts that set forth in detail the event study methodology I employed, he has violated the scientific process and ignored accepted academic protocol. To the extent that Professor Stulz failed to perform any independent or objective tests and/or his assertions are contradicted by other academic authors and texts, his criticisms of my methods, analyses and conclusions are improper and unsound. For example, Professor Stulz has performed no scientific tests and has ignored the academic literature that specifically

finds that the full intervention analysis method is the "ideal" against which more simple event study methods can be tested and shown to be biased against finding statistical significance.[19]   The fact that I employed classical statistical methods and concepts of control is ignored by Professor Stulz. It is a testable and provable fact (established by simple examination of the event studies I have performed in this case and the underlying data in comparison with Professor Stulz's event study) that Professor Stulz's application of the intervention analysis method is incomplete and, therefore, biased toward not finding statistical significance.[20]

39. Although I have specified evidence supporting my conclusions with respect to reliance, materiality and loss causation, Professor Stulz either discounts or ignores such evidence. He stated that the subject matter of the accounting fraud did not cause a statistically significant effect on AOL Time Warner's share price and was not material.

---

[19] See Aktas, de Bodt and Cousin, "Event Studies with a Contaminated Estimation Period," *Journal of Corporate Finance*, Vol. 13, 2007, pp. 130-135.

[20] This downward bias against establishing statistical significance under Professor Stulz's method has been thoroughly documented in the academic literature on the issue. See Aktas, de Bodt and Cousin, "Event Studies with a Contaminated Estimation Period," *Journal of Corporate Finance*, Vol. 13, 2007, p. 135, "…the presence of unrelated events within the estimation window has an impact on the (*ex post*) estimation of the AR variance. Classical tests…will overestimate the variance of the residuals during the estimation period in such conditions, leading to a <u>downward bias in the significance test</u> (i.e. less likelihood of rejecting the null hypothesis) during the event window." (emphasis added); Nimalendran, "Estimating the Effects of Information Surprises and Trading on Stock Returns Using a Mixed Jump-Diffusion Model," *Review of Financial Studies*, Fall 1994, p. 469, "Event studies are used to evaluate the economic impact of specific events. Traditional approaches analyze the abnormal returns around the announcement dates to determine the economic impact on securities. In addition, hypotheses tests are based on statistics derived under the assumption that returns are normally distributed. However, <u>many researchers have documented that the probability distribution of daily stock returns deviate substantially from normality, and the price path consists of significant discrete jumps. Incorrectly modeling the underlying price process may lead to inconsistent test statistics and biased inferences.</u> In addition to the incorrect specification of the underlying process for stock prices, the standard framework which looks at only the abnormal returns around announcements ignores the economic effects of trading by informed agents prior to the announcements. <u>Previous studies that use cumulative abnormal returns pool both the announcement effects and trading effects and lead to loss of information and inefficient estimators</u>." (emphasis added); See, also, Box and Tiao, "Intervention Analysis with Applications to Economic and Environmental Problems," *Journal of the American Statistical Association*, March 1975, p. 78; Larcker, Gordon and Pinches, "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," *Journal of Financial and Quantitative Analysis*, June 1980, pp. 267, 282 and 285; and Aktas et al., pp. 130 and 139.

However, that conclusion ignores the statistical significance of the overnight declines in AOL Time Warner's share price after the publication of two articles in *The Washington Post* on July 18 and 19, 2002 and ignores the steep decline in AOL Time Warner's share price on July 25 and July 30, 2002. He suggested that the news of layoffs in the AOL division did not cause significant stock price declines by simply ignoring the collective and individual statistical significance of the leakage events regarding layoffs on August 10, 13 and 14, 2001. Similarly, Professor Stulz suggests that the weakening of the advertising market and alleged known failure of CSFB to disclose that AOL Time Warner could not meet its EBITDA targets was known by the market, was not material, and led to no loss causation. This, of course, ignores the significant effects of such disclosures by AOL Time Warner on July 18, 2001 and the additional impact of various analyst reports on July 19, 2001. It furthermore ignores the negative effects of other analyst reports (equivalent in stature to CSFB, contrary to Professor Stulz's bald assertion) revealing the same relevant truths that were collectively statistically significant and often individually statistically significant. Finally, Professor Stulz falsely implies that no impact from CSFB analyst reports can be demonstrated. This, of course, ignores the effects of CSFB analyst reports on AOL Time Warner's share price relative to its peers on February 5, 2001, and the September 19, 2001 relative stock price effects on both AOL Time Warner and a number of its peers as a result of CSFB's analyst reports. Moreover, it ignores CSFB's internal emails reflecting the view that Mr. Kiggen was a "rock star" in the internet sector and that both Mr. Kiggen and Mr. Martin were among the highest-rated analysts covering AOL.

40. In summary, the methods employed in the Hakala Expert Report were based on sound, generally accepted principles of statistics, economics and finance and are consistent with the methods employed by experts in securities litigation for nearly twenty years. The analyses and conclusions in the Hakala Expert Report were based on rational, factually supported assumptions and reasoned judgments after applying the appropriate methods. The damage analyses in the Hakala Expert Report were, if anything, conservative and specifically limited by the event study analyses to the statistically significant impact that the alleged fraud committed by the Defendants had on AOL Time Warner's share price over time, as distinct from other frauds that may have occurred, distinct from other events that affected the share price of AOL Time Warner over time, and as distinct from market and industry forces. As a result, the inflation per share and damages set forth in the Hakala Report represent a relatively small fraction of the total investment losses realized by AOL Time Warner shareholders during the Class Period.

V.   Event Study Methodology

41. Both Professor Stulz and I employ essentially the same event study methodology (the "intervention" or "event parameter" approach). The significant difference between our respective intervention analyses is that my implementation of the intervention approach is more comprehensive and rigorous, resulting in more precise and reliable estimation of event effects (although this difference is minor in most instances) and superior tests of statistical significance. Empirically, it is a proven fact (based on likelihood ratio tests and F-tests) that my more rigorous implementation of the intervention approach statistically "encompasses" and dominates Professor Stulz's event study analysis and provides unbiased tests of statistical significance, whereas Professor

Stulz's tests of statistical significance are biased against finding statistical significance.[21]

Thus, the statistics literature rejects Professor Stulz's market model and statistical model

in favor of a model which controls for material events, as my model does in this case.

42. The use of intervention analysis as employed in this case is generally accepted

and recognized in numerous time-series statistics textbooks.[22]   It is even incorporated

explicitly into one of the most widely used academic-level statistical programs,

SAS/ETS, for modeling time-series data.[23]   Professor Stulz only controls for the events

for which he is testing, while I controlled for all events that were material and may cause

significant stock price movements.   The academic literature recognizes that the broader

_____

[21] See Aktas, de Bodt and Cousin, "Event Studies with a Contaminated Estimation Period," *Journal of Corporate Finance*, Vol. 13, 2007, pp. 130, 135 and 139 (failure to control for known, significant company-specific events will cause the estimated standard error to be overstated and the statistical significance of events to be understated). See, also, Larcker, Gordon and Pinches, "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," *Journal of Financial and Quantitative Analysis*, June 1980, pp. 267, 282 and 285; Nimalendran, "Estimating the Effects of Information Surprises and Trading on Stock Returns Using a Mixed Jump-Diffusion Model," *Review of Financial Studies*, Fall 1994, p. 469; Franses, *Time Series Models for Business and Economic Forecasting*, 1998, pp. 128-130; and Kennedy, *A Guide to Econometrics*, Fifth Edition, 2003, p. 95 (describes five basic criteria for assessing competing statistical models, including "encompassing"), p. 107-108 (omitting relevant information causes the standard error to be overstated and the test of statistical significance to be understated), pp. 409 and 413 (for variables chosen *a priori* it is better to be overinclusive using a t-statistic threshold of, say, 1.0 from a reliability and precision perspective).

[22] For example, Box, Jenkins, and Reinsel, *Time Series Analysis: Forecasting and Control*, Third Edition, 1994, (also, forthcoming Fourth Edition, July 2008); Pena, Tiao, and Tsay, *A Course in Time Series Analysis*, 2000; Montgomery, Jennings and Kulahci, *Introduction to Time Series Analysis and Forecasting*, 2008; Yaffe, *An Introduction to Time Series Analysis and Forecasting: with Applications of SAS and SPSS*, 2000; and Brockwell and Davis, *Introduction to Time Series and Forecasting*, 2003 all contain sections that focus on intervention analysis and McDowall, McCleary, Meidinger, Hay, *Interrupted Time Series Analysis*, 1980, focus on intervention analysis.

[23] See *SAS/ETS Users Guide, Version 8 (SASOnlineDoc)*, 1999, Chapter 27: Using Predictor Variables, pp. 1339-1347 (discusses the application of a number of intervention variables in analyzing and forecasting time-series data, such as sales data). See, also, Leonard and Wolf, SAS Institute, "Mining Transactional and Time Series Data," SUGI 30 Data Mining and Predictive Modeling, Paper 080—30, pp. 11-12, "INTERVENTION TIME SERIES MODELS Unlike causal time series models, intervention time series models are used to describe departures from the underlying data-generating process of a dependent time series using indicator (dummy) variables that indicate when an event occurs in time. Applying an intervention time series model to a time series can help reduce the amount of information that must be analyzed, similar to causal time series models as described above. Additionally, after fitting the intervention model to the time series data, the fitted model can be used to determine the influence of the events or intervention effect."; "Intervention time series modeling can reduce a single time series to a small set of parameter estimates. These models are especially useful for determining the effect of calendar events."

effort to control for all significant events is the ideal, and that failing to control for significant events will result in incomplete and biased conclusions of statistical significance.[24]

43. My event study methodology applies this intervention analysis method in three stages consistent with the academic literature. First, I identified company-specific news events that fit within accepted lists of the kinds of news that may be material.[25] The academic literature has repeatedly recognized the importance of this step in the "ideal" event study process and the necessity of making reasoned or economic judgments in formulating the exact statistical model and choosing the events to consider in the analysis.[26] In fact, a number of academic sources recognize that this method is superior

---

[24] See Aktas, de Bodt and Cousin, "Event Studies with a Contaminated Estimation Period," *Journal of Corporate Finance*, Vol. 13, 2007, pp 130, 135 and 139.; Nimalendran, "Estimating the Effects of Information Surprises and Trading on Stock Returns Using a Mixed Jump-Diffusion Model," *Review of Financial Studies*, Fall 1994, p. 469, "Event studies are used to evaluate the economic impact of specific events. Traditional approaches analyze the abnormal returns around the announcement dates to determine the economic impact on securities. In addition, hypotheses tests are based on statistics derived under the assumption that returns are normally distributed. However, many researchers have documented that the probability distribution of daily stock returns deviate substantially from normality, and the price path consists of significant discrete jumps. Incorrectly modeling the underlying price process may lead to inconsistent test statistics and biased inferences. In addition to the incorrect specification of the underlying process for stock prices, the standard framework which looks at only the abnormal returns around announcements ignores the economic effects of trading by informed agents prior to the announcements. Previous studies that use cumulative abnormal returns pool both the announcement effects and trading effects and lead to loss of information and inefficient estimators."; as well as prior quotes from, Box and Tiao, "Intervention Analysis with Applications to Economic and Environmental Problems," *Journal of the American Statistical Association*, March 1975, p. 78; Larcker, Gordon and Pinches, "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," *Journal of Financial and Quantitative Analysis*, June 1980, pp. 267, 282 and 285; and Aktas et al., pp. 130 and 139. (underlines added for emphasis)

[25] The list of news items deemed "material" under the NASDAQ guidelines, recognized by the SEC in the *Federal Register*, Vol. 67, No. 157, August 7, 2002, pp. 51306-51309, and the categories of third party news reports, analyst reports and insider trading events consistent with the academic studies, including, Paul Ryan and Richard J. Taffler, *Are Economically Significant Stock Returns and Trading Volumes Driven by Firm-specific News Releases?*, 31 *Journal of Business Finance & Accounting*, January/March 2004, at 49.

[26] Box and Tiao, "Intervention Analysis with Applications to Economic and Environmental Problems," *Journal of the American Statistical Association*, March 1975, p. 78, states, "In practice, it is perhaps more often the case that a response at a given point of time depends on events, both known and unknown, which have occurred not necessarily coincidentally but over the recent past. Statistical methods have, in a word, "lacked memory." The dynamic characteristics of both the transfer function and the noise parts of the model have tended to be ignored. The application of time series methods can amend this situation. This is

to the alternative event study methods recognized in the academic literature and that the

identification of significant events is important in accurately estimating and testing the

statistical model.[27]   Furthermore, the academic literature recognizes that the selection of

---

illustrated in this article in the particular case where the object is to study the possible effect of interventions in the presence of dependent noise structure." This article specifically supports the entire event study method employed in this case in that it, (i) specifically recommends identifying and controlling for "events" that occur over time; (ii) allows for the liberal identification and use of events in explaining movements in stock prices; and (iii) recognizes that this issue "tend[s] to be ignored" in the academic literature but is an important part of the time series. Similarly, Larcker, Gordon and Pinches, "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," *Journal of Financial and Quantitative Analysis*, June 1980, p. 267, states, "The objective of this paper is to suggest that the traditional CAR methodology is often inappropriate and that intervention analysis is a possible alternative. Where the systematic risk (i.e., β) of a firm changes as the result (or in anticipation) of an announcement, the cumulative average residual methodology will result in biased residuals. Analysis of this biased residual pattern does not provide an appropriate basis for making statements about the information content of the announcement or market efficiency. Intervention analysis, on the other hand, can separate such risk changes from the information content of the announcement. In addition, intervention analysis also allows the observed autocorrelation in the market model residuals to be removed, thus providing improved β estimates required for reliable statistical testing." (underline added) Larcker et al. further refer to the Box and Tiao 1975 paper as specifically applicable to event studies, stating (p. 272), "Financial announcements may be viewed as an intervention, where the term intervention refers to an event occurring between the beginning and end of some time series. Box and Tiao have developed a general class of stochastic models which incorporate the possibility of a change in the process due to interventions." and noting (p. 282), "The primary advantage of intervention analysis in the case of nonstationary β 's and excess risk-adjusted returns is that the traditional methodology presents results which are confounded while intervention analysis disentangles the results…. Hence, while the traditional CAR methodology may lead to the same conclusion as intervention analysis, it provides less information due to the confounding that may occur." and (p. 285) "The primary advantages of intervention analysis are: (1) the ability to specifically test for a shift in the return series as distinct from risk changes, (2) the ability to remove autocorrelation, and (3) the necessity to consider each security on a case-by-case basis instead of forcing one model on all securities. The first two advantages have already been discussed. The final advantage of intervention analysis is that it forces consideration on a case-by-case basis." Thus, Larcker et al., 1980, specifically recommend the event study methodology I employed as superior to the alternatives and even recommend that (p. 274), "the intervention variable (δ) must be specified in advance" consistent with the first step of my event study analysis, as discussed in Hakala Expert Report on pp. 36-37 at ¶48. Finally, Franses in *Time Series Models for Business and Economic Forecasting*, 1998, recommends "intervention" analysis (p. 130) consistent with Box and Tiao (1975) and points out the statistical problems that arise when one does not capture the effects of known events (with dummy variables) or "neglects them" (pp. 128-129). He states (p. 144), "With *a priori* knowledge of specific events and approximate dates which may yield aberrant observations (…), it is not difficult to examine their relevance for a model that will be used for forecasting. We can simply extend our model with additional regressors, such as the dummy variables….."

[27] More specifically, see, for example, Larcker, Gordon and Pinches, "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," *Journal of Financial and Quantitative Analysis*, June 1980, pp. 267, 282 and 285; Nimalendran, "Estimating the Effects of Information Surprises and Trading on Stock Returns Using a Mixed Jump-Diffusion Model," *Review of Financial Studies*, Fall 1994, pp. 451-454, 461, 468, and 469, state, respectively: "I find that for more than 93 percent of the firms in our sample the mixed jump-diffusion model is statistically superior to the pure diffusion model in describing stock returns."; "Many studies have evaluated the robustness of the estimators with respect to the theoretical and statistical assumptions underlying the methodology. The

---

events prior to examining the data and based on economic criteria is the preferred method

for selecting events[28] and that it is better to be over-inclusive rather than under-inclusive

---

general finding is that the specification, power, and efficiency of the estimators are seriously compromised if (i) the event date is incorrectly specified, (ii) there is significant change in volatility, or (iii) the underlying stochastic process is not correctly modeled. In addition, traditional event-study methodology does not model the process by which private information is incorporated into prices through strategic trading."; "The jump-diffusion model has several advantages over a traditional event-study method, particularly for events with multiple announcements. The intervention analyses method is based on explicitly capturing the "jumps' caused by company-specific news events. First, Akgiray and Booth (1987), Ball and Torous (1985), and Jarrow and Rosenfeld (1984) find that the mixed jump-diffusion model is superior to a pure diffusion model in describing daily stock price dynamics. Second, public release of unexpected information is generally associated with discrete jumps in process; therefore, a jump-diffusion model is likely to be better than a pure diffusion model in describing stock returns. Finally, separating the jump and diffusion components allows researchers to assess the significance of informed trading around events such as proxy contests and earnings announcements."; "When the economic impact of the event on security prices is small, with an estimator with higher power is always preferable."; "These findings highlight the relative merits of my model over the usual event study method. First, the jump-diffusion model is shown to be statistically superior to the pure diffusion model in describing the underlying price process. Second, one obtains more powerful tests of the economic effects of the event. Finally, one gets additional information about the relative effects of trading versus information in the different estimation periods."; and "Event studies are used to evaluate the economic impact of specific events. Traditional approaches analyze the abnormal returns around the announcement dates to determine the economic impact on securities. In addition, hypotheses tests are based on statistics derived under the assumption that returns are normally distributed. However, many researchers have documented that the probability distribution of daily stock returns deviate substantially from normality, and the price path consists of significant discrete jumps. Incorrectly modeling the underlying price process may lead to inconsistent test statistics and biased inferences. In addition to the incorrect specification of the underlying process for stock prices, the standard framework which looks at only the abnormal returns around announcements ignores the economic effects of trading by informed agents prior to the announcements. Previous studies that use cumulative abnormal returns pool both the announcement effects and trading effects and lead to loss of information and inefficient estimators."; Higgins, "Power of One and Two Sample T-Statistics Given Event-Induced Variance Increases and Non-normal Stock Returns: A Comparative Study," *Quarterly Journal of Business and Economics*, Winter 1998, "These variance increases can cause problems when using the traditional one sample t-statistic to test for abnormal returns. <u>One sample t-statistic will reject the null hypothesis of no abnormal returns too often when there are variance increases around an event</u>." and "As Lehmann notes, the t-statistic is optimal only when the underlying sample distribution is normal. Therefore, when the underlying sample distribution is non-normal, the performance of the t-statistic becomes an empirical question." (emphasis added, the point of the article is the need to control for events and the effect of events causing the standard errors to be overstated and statistical significance understated); Franses, *Time Series Models for Business and Economic Forecasting*, 1998, pp. 128-130; Marais and Schipper, "Chapter 17A: Event Study Methods: Detecting and Measuring the Security Price Effects of Disclosures and Interventions," *Litigation Services Handbook: The Role of the Financial Expert*, Third Edition, 2005 Cumulative Supplement, Chapter 17A, pp. 18, and 22-23; and Aktas, de Bodt and Cousin, "Event Studies with a Contaminated Estimation Period," *Journal of Corporate Finance*, Vol. 13, 2007, pp. 130 and 139 (wherein he refers to my method as the "manual" or "brute force" method and demonstrates that, when feasible, the manual method is the "ideal" against which the alternative event study methods should be tested). It should be noted that Nimalendran's "jump-diffusion" event study model is essentially equivalent to the intervention method I employed when significant events are controlled for in the analysis and yields an approximately equivalent solution to the problems with the more primitive event study method.

[28] Most specifically, see, for example, Larcker, Gordon and Pinches, "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," *Journal of Financial and Quantitative Analysis*, June 1980, p. 274, "the intervention variable (δ) must be specified in

at this step of the process.[29]   Professor Stulz cannot find and does not cite a single

academic source that specifically rejects the exact statistical concepts and methods I

employed in performing my event study analysis.

---

advance."; Franses, *Time Series Models for Business and Economic Forecasting*, 1998, pp. 129-130, and 144, "In this book, I adopt the contrasting view that outliers, or sets of these aberrant data in the form of breaking trends or level shifts, somehow convey important information which we would want to exploit explicitly for forecasting or for taking into account, prior to forecasting. Additionally, <u>it is assumed that the practitioner has some *a priori* knowledge about the likely location and relevance of such data</u>, or that some recursive technique is used indicating such patterns."; "With *a priori* knowledge of specific events and approximate dates which <u>may</u> yield aberrant observations (as I will assume below), it is not difficult to examine their relevance for a model that will be used for forecasting." (<u>underline</u> added) More generally, see, for example, Kennedy, *A Guide to Econometrics*, Second Edition, 1987, pp. 68-69, "A specification search is best undertaken by beginning with a general, unrestricted model and then systematically simplifying it in the light of the sample evidence. This approach (deliberate 'overfitting') is preferred to/has more power than a search beginning with a very simple model and expanding as the data permit (see Harvey, 1981, pp. 183-187)."; "To avoid these problems a researcher usually tries to determine the correct set of explanatory variables. The first and most important ingredient in such a search is economic theory. If economic theory cannot defend the use of a variable as an explanatory variable, it should not be included in the set of potential independent variables. <u>Such theorizing should take place before any empirical testing of the appropriateness of potential independent variables</u>; this guards against the adoption of an independent variable just because it happens to 'explain' a significant portion of the variation in the dependent variable in the particular sample at hand." (<u>underline</u> added); Campbell, Lo and MacKinlay, *The Econometrics of Financial Markets*, 1997, p. 524, "But perhaps the most effective means of reducing the impact of overfitting and data-snooping is to impose some discipline on the specification search by *a priori* theoretical considerations. These considerations may be in the form of well-articulated mathematical models of economic behavior, or behavioral models motivated by psychological phenomena, or simply heuristic rules of thumb based on judgment, intuition, and past experience….All this suggests the need for an *a priori* framework or specification for the model before confronting the data. By proposing such a specification, along with the kinds of phenomena one is seeking to capture and the relevant variables to be used in the search, the chance of coming upon a spuriously successful model is reduced."

[29] See, for example, Kennedy, *A Guide to Econometrics*, Second Edition, 1987, pp. 68-69; Intriligator, *Econometric Models, Techniques, and Applications*, 1978, pp. 188-189, ("The asymmetry between the results in the two cases should be noted: excluding relevant variables yields biased and inconsistent estimators, while including irrelevant variables yields unbiased and consistent estimators. Thus, in terms of bias and consistency, it is better to include too many than to include too few explanatory variables… Considerable judgment, in fact, is called for in the specification of the model, balancing between including 'too few' and 'too many' variables… In general, the best approach is to include only explanatory variables that, on theoretical grounds, directly influence the dependent variable and that are not accounted for by other included variables.") and Pindyck and Rubinfeld, *Econometric Models and Economic Forecasts*, 1991, pp. 162-166 ("If we are unsure of which explanatory variables ought to appear in a model, we face several trade-offs. The analysis shows that the cost of excluding a variable which should appear in the model is bias and inconsistency. The cost of adding one or more irrelevant variables is loss of efficiency. If the number of observations is large, it seems reasonable to opt for the risk of adding irrelevant variables, because the loss of degrees of freedom is unlikely to be serious. If the number of observations is not large, however, loss of efficiency becomes serious. In general, the choice of model form must be made in terms of the bias-efficiency trade-off, with the result dependent on the objective. If accurate forecasting is the goal, minimizing mean square error is one reasonable objective, since it accounts for both bias and efficiency. Thus, we might estimate each of several alternative models over a given time period and compare the mean square errors associated with each.").

44.   There is nothing "arbitrary" in the identification and selection of events. All event studies require the identification of news events of interest and explanatory variables in general and require that judgments be made by the researcher or some other party as to whether to consider or not consider such events.[30] The academic literature states that as long as the final judgments/statistical models are provided (in the list of events set forth in Exhibit B to the Hakala Expert Report), the calculations can be adequately replicated.[31]

45.   Professor Stulz complains (Stulz Report ¶104) about the increase in the number of events identified in the Hakala Expert Report relative to prior analyses of AOL Time Warner, however, he ignores the fact that the present report is attempting to measure different things than what the prior report on market efficiency was attempting to measure, and that adding events was necessary and proper for the present purposes. Among other things, the present report and study sought to measure the impact on AOL Time Warner's share price of analyst reports that change recommendations, price targets and earnings targets, and thus, it was important to identify and control for the impacts all

---

[30] In specific relation to event studies, financial market models and intervention analyses, see, for example, Box and Tiao, "Intervention Analysis with Applications to Economic and Environmental Problems," *Journal of the American Statistical Association*, March 1975; Larcker, Gordon and Pinches, "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," *Journal of Financial and Quantitative Analysis*, June 1980, p. 274; and Franses, *Time Series Models for Business and Economic Forecasting*, 1998, p. 144; and Ryan and Taffler, "Are Economically Significant Stock Returns and Trading Volumes Driven by Firm-specific News Releases?" *Journal of Business Finance & Accounting*, Vol. 31(1) & (2), January/March 2004, p. 50. More generally, see, for example, Kennedy, *A Guide to Econometrics*, Second Edition, 1987, pp. 68-69; Intriligator, *Econometric Models, Techniques, and Applications*, 1978, p. 189 ("Considerable judgment, in fact, is called for in the specification of the model, balancing between including "too few" and "too many" variables."); Pindyck and Rubinfeld, *Econometric Models and Economic Forecasts*, 1991, pp. 162-166; and Campbell, Lo and MacKinlay, *The Econometrics of Financial Markets*, 1997, p. 524, "These considerations may be in the form of well-articulated mathematical models of economic behavior, or behavioral models motivated by psychological phenomena, or simply heuristic rules of thumb based on judgment, intuition, and past experience….All this suggests the need for an *a priori* framework or specification for the model before confronting the data. By proposing such a specification, along with the kinds of phenomena one is seeking to capture and the relevant variables to be used in the search, the chance of coming upon a spuriously successful model is reduced." (underline added)
[31] Ibid.

such analyst reports. Indeed, in the event study Professor Stulz prepared in connection with his April 26, 2007 report, Professor Stulz controlled for the effects of all the events for which he was testing, i.e.; all of CSFB's reports on AOL. His criticism of my most recent report for controlling for the additional statements for which I tested, due to the different purposes of that report, is thus nonsensical.

46.   To the extent Professor Stulz asserts that the number of events identified is excessive, this has no practical statistical consequence and is a fallacy.[32] Indeed, as shown in Exhibit B-1-Limited to this rebuttal report and as discussed in the Hakala Expert Report, removing the events that failed to meet a recognized criteria for being minimally important has virtually no effect on the inflation per share and damages analysis and would only increase the statistical significance of the relevant events (which is the opposite of the effect that Professor Stulz suggests). Thus, criticizing my event study for identifying and controlling for "too many" events has no statistical, practical, or scientific meaning and has no adverse effect on the reliability of the estimates provided.[33]

47. The second stage of my event study analysis was to control for market and industry forces by designing industry indices based on companies with similar or related characteristics to the businesses of AOL Time Warner. Professor Stulz criticizes my selection of companies for both the TECH and MEDIA indices as "arbitrary." However, there is nothing arbitrary about the identification and selection of possible peer companies for inclusion in such indices. The selection criteria was simply to identify

---

[32] For example, *SAS/ETS Users Guide, Version 8 (SASOnlineDoc)*, 1999, Chapter 27: Using Predictor Variables, p. 1339, explains, "Intervention specifications are associated with the series. You can specify any number of interventions for each series…"

[33] See, for example, Kennedy, *A Guide to Econometrics*, Second Edition, 1987, pp. 68-69; Intriligator, *Econometric Models, Techniques, and Applications*, 1978, p. 189 ("Considerable judgment, in fact, is called for in the specification of the model, balancing between including "too few" and "too many" variables."); and Pindyck and Rubinfeld, *Econometric Models and Economic Forecasts*, 1991, pp. 162-166.

companies that were reported by analysts and in news reports as moving in concert with or otherwise related to AOL Time Warner's two business segments and to limit the final companies in each index to those that were at least marginally significant individually and collectively significant with each of the two indices. This is a principled -- not "arbitrary" – method, which has been repeatedly used in event studies for years.

48. Additionally, Professor Stulz criticizes changes in the indices from my prior analyses prepared in the *In re AOL Time Warner Securities Litigation*, however, these changes are a function of the fact that my original event analyses in *In re AOL Time Warner Securities Litigation* were based on a much longer class period (1999 through July 2002, as opposed to the January 2001 through July 2002 class period here). This change in the period of interest caused certain companies to cease to be significant (AT&T and Comcast) and caused other media companies (Gannet) to be more significant and, thus, naturally led to a change in the composition of the MEDIA Index. For the same reason, eBay was included in an earlier analysis in the TECH Index but failed to be as significant and, therefore, was excluded from the TECH Index in the final study for damages purposes. Similarly, in the more narrow event study period relevant in this case, the statistical significance of the NASDAQ Composite Index (CCMP) was lost once I controlled for analyst reports. Thus, the CCMP was excluded from the set of market and industry indices finally chosen in Exhibit B-1 to the Hakala Expert Report. Of course, an examination of the data supports each of these changes from prior analyses to the final analyses in the Hakala Expert Report, but instead of examining the data, and further ignoring the detailed description of my process provided in the Hakala Expert Report, Professor Stulz offers yet another unsupported criticism of my method.

49.   Finally, I considered the effects of sets of events together, as well as individually, as is recommended in the academic literature.[34] By contrast, Professor Stulz only looks at certain events and at the most extreme criteria for statistical significance possible.[35] Again, Professor Stulz's criticism ignores the academic citations provided in the Hakala Expert Report and violates a number of important statistical principles. The criteria for considering a set of related events should, when appropriate, be based on a joint test of the set of events as a whole and not based on whether each individual event is significant by itself.[36] In fact, in the multiple-company event studies discussed in the

---

[34] See Cassidy, *Using Econometrics,* 1981, pp. 252-253 and Kennedy, *A Guide to Econometrics*, Second Edition, 1987, pp. 65 and 70. See, also, Intriligator, *Econometric Models, Techniques, and Applications*, 1978, pp. 188-189, and Pindyck and Rubinfeld, *Econometric Models and Economic Forecasts*, 1991, pp. 162-166.

[35] See, for example, Alan Stuart, et al., *Kendall's Advanced Theory of Statistics, Volume 2A: Classical Inference & The Linear Model,* p. 193 (6th ed. 1999) ("This numerical convenience [rule of thumb criteria for statistical significance] has persisted long beyond its hour of need."); Lapin, *Statistics for Modern Business Decisions,* p. 186 (1978) ("A decision rule must be chosen that will provide a lower probability of the more serious error . . . . He [the decision-maker] should therefore be wary of setting Alpha [the criteria for significance] and Beta at arbitrary or traditional levels."); Berry and Lindgren, *Statistics: Theory and Methods,* pp. 423-427 (2d ed. 1996) (arguing against a fixed criteria for statistical significance and for considerations of practical significance); and Cassidy, *Using Econometrics,* pp. 129-138 (1981) (describes the setting of confidence levels at the 10% rejection rate and "One-sided tests should be used whenever the researcher's prior permit.")

[36] See, for example, Cassidy, *Using Econometrics,* 1981, Chapter 10, particularly pp. 246-248 and 250-253, "For reasons that will be made clear, this approach requires the construction of a dummy variable that takes on the value of 0 for data set I and 1 for data set II:

$$(0 \text{ for observation } i \text{ in Data Set I} \quad (10.1.11)$$
$$D_i; = (1 \text{ for observation } i \text{ in Data Set II})$$

This dummy variable and all its "interaction" terms are constructed and included in the equation."; "The powerful technique of using zero-one dummy variables as regressors was discussed in Section 2.1. The most important aspect of using them as regressors, as stressed there, is to give them the appropriate set-up and interpretation. Typically, one of the conditions that forms the basis for the dummies is omitted from the equation in order to avoid perfect multicollinearity. Thus, the coefficients of the included dummies are interpreted as the incremental effects of the conditions represented by the included dummies, compared with the condition of the omitted dummy."; "Seasonal dummies, as in equation 2.1.29, if tested, are usually tested as a group (with an *F-test*) rather than individually (with a series of *t-tests*). That is, one would test whether the coefficients of all the seasonal dummies are zero, using the approach of equation 10.1.6, rather than applying t-tests on individual coefficients. (Under the constrained estimating equation, the whole set of seasonal dummies is deleted.) A determination can then be made as to whether the whole set of seasonal dummies should be included. But to exclude some of the seasonal dummies because their estimated coefficients have low t-statistics is not recommended. Although it would appear that a degree of freedom is saved by such a deletion, a degree of freedom has, in fact, been used up in the original estimation. And the final result would smack of the stepwise procedure discussed in Section 6.4.2. Usually, where seasonal dummies are called for, no attempt is made to test even for their collective statistical significance." While

academic literature, statistical significance of an event is not determined based on the

statistical significance of each individual company event, by itself, but rather based on

the joint significance of the same type of event as it appears over time for the same

company and across multiple companies.[37]   Individual events that prove to not be

significant in the final analysis, after having been chosen *a priori* on economic grounds,

should nevertheless remain in the final analysis according to the academic literature

because they were selected initially and are part of the overall set of identified events.[38]

Additionally, individual events and variables that have a t-statistic greater than 1.0 and

are relevant should remain in the analysis because they improve the overall reliability and

reduce the overall bias of the analysis.[39]   Furthermore, as shown in Exhibit B-1-Limited

---

the last quote deals with seasonal dummy variables, the principle of not deleting insignificant dummies in
the final regression applies equally to this case and, in any event, deleting the clearly insignificant dummy
variables in this case, as shown in Exhibit B-Limited to this declaration, does not alter the conclusions of
the analysis.) and Kennedy, *A Guide to Econometrics*, Second Edition, 1987, p. 70 ("If we are dealing
with the question of inclusion or exclusion of a set of variables, rather than a single variable, the *t*
value noted above must he an *F* value."). The key point is that the identified events are chosen as a set,
or group, on *a priori* grounds in the analysis, and, therefore, should be tested for statistical significance as a
set and not individually for purposes of testing the specified model. Removing the insignificant events
(with absolute t-statistics less than one as discussed in Kennedy, *A Guide to Econometrics*, Second Edition,
1987, pp. 65 and 70) has no material effect on the conclusions, as shown in Exhibits B-1-Limited attached
to this declaration.

[37] Campbell, Lo and MacKinlay, *The Econometrics of Financial Markets*, 1997, Chapter 4 Event-Study
Analysis, p. 160, "The abnormal return observations must be aggregated in order to draw overall inferences
for the event of interest. The aggregation is along two dimensions-through time for an individual security
and across securities."

[38] Cassidy, *Using Econometrics,* 1981, Chapter 10, particularly pp. 246-248, and 250-253.

[39] This is discussed briefly in Kennedy, *A Guide to Econometrics*, Second Edition, 1987, pp. 65 and 70,
"The result that the 'correct' set of independent variables produces a higher adjusted R-squared on average
in repeated samples was derived by Theil (1957). If adding an independent variable increase adjusted R-
squared, its *t* value is greater than unity."; "A common procedure in determining the appropriate set of
regressors is to include a variable if its t value is greater than some specified number. In the general notes
to section 4.5 we noted that, if this critical *t* value is unity, this rule corresponds to maximizing R-squared;
an obvious alternative critical value is the *t* value corresponding to testing the variable's coefficient against
zero at the 5% level. If we are dealing with the question of inclusion or exclusion of a set of variables,
rather than a single variable, the *t* value noted above must he an F value. Whenever a large number of
potential independent variables exist, checking every combination of these variables for their performance
on the basis of one of these rules can be very costly computationally. Maximizing an alternative adjusted
form of R^2 (i.e., different from R^2) arises from other approaches based on specific loss functions. For
example, the set of variables may be chosen so as to minimize some sort of expected loss associated with
prediction errors. These alternative criteria create slightly different trade-offs between goodness of fit (R^2)
and parsimony (number of explanatory variables). They may also be interpreted in some cases as giving

to this declaration, removing the events that are not "statistically meaningful"[40] by themselves only increases the statistical significance of the events of interest (the opposite of the result implied by Professor Stulz) and removes the less significant "unrelated" events, but results in no material change in the event effect estimates or the statistical significance of the various types of relevant events.

VI.   Inflation per Share and Damages

50. As discussed at length, the specific methodology of identifying the disclosure of the relevant truth and matching it up with the allegedly false and misleading statements is and has been widely accepted for purposes of securities litigation.[41]   Furthermore, it is

---

rise to slightly different critical values of the *t* or *F* statistics discussed above." For a more advanced discussion, see Amemiya, *Advanced Econometrics*, 1985, pp. 49-55, wherein he discusses various "information criteria" for including variables and sets of variables within an analysis and discusses the use of an F-test or equivalent to test adding to an existing statistical model an additional set of variables (group of selected events). More generally, see, also, prior references to Intriligator, *Econometric Models, Techniques, and Applications*, 1978, pp. 188-189, and Pindyck and Rubinfeld, *Econometric Models and Economic Forecasts*, 1991, pp. 162-166.

[40] As defined by a t-statistic of less than 1.0 in the Hakala Expert Report.

[41] Cornell and Morgan, "Using Finance Theory to Measure Damages in Fraud on the Market Cases," *UCLA Law Review*, June 1990, pp. 899-900, "Use the series of returns constructed in step two to calculate the value line backwards in time according to the formula set out as Equation 4: Value(t-1) = Value(t)/(1+Constructed return (t-1))." and "The value line is calculated backwards in time using the actual returns for days when there are no disclosures, and using the predicted returns on days when there are fraud related disclosures." (underline added); Koslow, "Estimating Aggregate Damages in Class Action Litigation Under Rule 10b-5 for Purposes of Settlement," *Fordham Law Review*, April 1991, pp. 819-825, "Construct a value line backwards from the date when the market price of the stock fully reflects disclosure of the fraud, using the predicted returns to derive true values for the stock on a daily basis. In other words, use the stock returns calculated using the comparable-index formula, "r-true", to calculate the stock price in the absence of fraud."; and Finnerty and Pushner, "An Improved Two-Trader Model for Estimating Damages in Securities Fraud Class Actions," *Stanford Journal of Law, Business and Finance*, 2003, pp. 218-221, "A critical component of the damage calculation is the amount of *inflation* in the firm's share price each day that is directly attributable to the fraud. The daily inflation amounts are referred to as the *inflation ribbon*. Calculating the inflation ribbon requires estimates of the *but-for* share prices, which are the daily prices at which the firm's shares would have traded were it not for the fraud. The amount of [*219] inflation is then calculated as the difference between the actual daily prices and the daily but-for prices."

"In order to specify properly the effect of the fraud on the affected company's share price, it is necessary to isolate the effect of the fraud by calculating daily but-for share prices that reflect daily changes in share price caused by (1) market-wide effects, (2) industry effects, and (3) company-specific influences unrelated to the fraud. Failure to adjust fully for these effects in the calculation of the but-for share prices might increase or decrease the calculated inflation premium, but will in either case result in the *but for* share prices being biased and the damage calculation being distorted (usually upward n12). The but-for share price calculation is usually based on the *backwardation* method, which starts with the share price

well-recognized that the failure of the Defendants to issue a *mea culpa* does not defeat

loss causation if the "relevant truth" was revealed through other equivalent means.[42] The

---

immediately following the disclosure of the fraud, marking the end of the damage period. It is assumed that the shares are fairly priced and, thus, that there is zero inflation after the fraud has been fully disclosed. This assumption is reasonable under the widely-accepted hypotheses that an efficient market will react to the disclosure by quickly restoring the share price to fair value. The <u>backwardation procedure works backward through the damage period day-by-day beginning with the post-damage-period fair price to calculate a complete set of but-for share prices</u>."

"The improved plaintiff-style approach incorporates either market-wide or industry wide effects by taking the final market share price after the correction for the announcement of the fraud and then <u>backcasting</u> this price based on a single index of share prices, usually one that is based on share prices for the market or the industry. However, seldom are any adjustments made for company-specific announcements that are not related to the fraud."

"Our approach extends the usual comparable index approach in two ways: (1) <u>by using an improved index that reflects both industry and market-wide influences</u>, and (2<u>) by incorporating firm specific factors that can be directly attributed to company announcements that are not related to the fraud</u>."

"<u>We also adjust for firm-specific factors that can be directly attributed to company announcements that are not related to the fraud</u>. For example, the aware of a large contract to the subject firm would not be captured in either the industry or market price changes, but will normally influence the firm's share price favorably. If not allowed for in the calculation of the *but-for* prices, a positive announcement unrelated to the fraud would cause the inflation premium to be understated (because the change in the but-for price is overstated) and a negative announcement would cause it to be overstated. <u>Our damage calculation takes both positive and negative firm-specific factors into account and results in a truer set of but-for prices than is typically obtained using less exacting inflation-ribbon calculation approaches. This adjustment is done by substituting in the backwardation calculation the actual stock return on the dates of important (non-fraud related) company news, rather than using the return implied by market and industry movement</u>. We explain this adjustment mathematically in Section III.B." (<u>underlines</u> added for emphasis)

The method described in Finnerty and Pushner's article is exactly the same methodology that I employed in this case by controlling for market and industry forces and company-specific events, both related and unrelated to the alleged fraud.

[42] See: *Brief for the United States as Amicus Curiae* at 10-11, *Dura Pharma., Inc. v. Brouda*, 125 S. Ct. 1627 (2005) (No. 03-932), also available at <u>http://www.usdoj.gov/osg/briefs/2003/2pet/6invit/2003-0932.pet.ami.inv.pdf</u> ("The artificial inflation will not be reduced or eliminated until the market price reflects the true facts that had been concealed by the fraud. This will most commonly occur when the truth is revealed in whole or in part through a corrective disclosure. That, however, is not the only way the fraud may be revealed. <u>Events may also effectively disclose the truth</u>.") (emphasis added); *Transcript of Oral Argument* in *Dura,* January 12, 2005, p. 20, Thomas G. Hungar, On Behalf of the United States, as Amicus Curiae, "<u>That does not mean that the company must make an announcement or that there must be an admission of fraud or that there must be really any information, any -- any sort of formal disclosure</u>. But if the information is disseminated to the market such that the market, in whole or in part, becomes aware of the truth and adjusts the price accordingly, that price adjustment is loss and the plaintiff has alleged loss causation in an amount to be proven at trial." (emphasis added); *In re Bradley Pharmaceuticals Sec. Lit.,* 2006 U.S. Dist. LEXIS 13738 (D. N.J., March 23, 2006) (ruling that a series of "disclosing events" were adequate for pleading loss causation, and stating, "We disagree with Defendants' rigid and dogmatic, interpretation of *Dura*. In *Dura*, the Supreme Court only suggested that the plaintiffs needed to have alleged in some fashion that 'the truth became known' before 'the share price fell.' *Dura,* 125 S. Ct. at 1634. However, *Dura* did not address what type of events or disclosures may reveal the truth… Nor did *Dura* explain how specific such disclosure must be") (internal citations omitted); *In re Winstar Communications*, 2006 U.S. Dist. LEXIS 7618 (S.D. N.Y. 2006) (stating that in *Dura*, "the Court did not address the means by which the information is imparted to the public. Specifically, *Dura* did not set forth any requirements as to who may serve as the source of the information, nor is there any requirement that the disclosure take a particular form or be of a particular quality," and further stating that "the market may

"equivalent means" that have been recognized are disclosures by third parties of the concealed information include: AOL Time Warner's disclosures of lower advertising growth rates on July 18, 2001, and further commented on by analysts on July 19, 2001; AOL Time Warner's disclosure on July 25, 2002 of accounting issues; disclosures over time by other equivalent analysts of the information that CSFB allegedly knew but did not disclose; and disclosures by news reports and rumors of layoffs on August 10, 13 and 14, 2001.

51. The method I applied of using "equivalent disclosure" events to estimate market impact is widely understood and recognized in the event study[43] and loss causation literature.[44] Professor Stulz ignores my analyses of the effects of positive analyst reports by analysts of equivalent stature as Mr. Kiggen and Ms. Martin on AOL Time Warner's share price, and instead suggests that certain positive CSFB analyst reports did not increase AOL's share price because they were somehow inferior or given less weight than other analyst reports. There is no evidence of this supposed inferiority of CSFB's

---

learn of possible fraud [from] a number of sources: e.g., from whistleblowers, analysts' questioning financial results, resignation of CFOs or auditors, announcements by the company of changes in accounting treatment going forward, newspapers and journals, etc."); *Brumbaugh v. Wave Systems Corporation*, 416 F. Supp. 2d 239, 2006 U.S. Dist. LEXIS 725 at *10-11 (D. Mass. 2006) (finding loss causation adequately pled where the plaintiffs had alleged that the company's disclosure of an SEC investigation relating to Defendants' misleading statements had "shocked the market" and caused the stock price to drop); *In re Worldcom, Inc. Sec. Litig.*, 388 F. Supp. 2d 319 at 347 (to satisfy loss causation under *Dura*, plaintiff must "establish that his losses were attributable to some form of revelation to the market of the wrongfully concealed information"); *Greater Pennsylvania Carpenters Pension Fund v. Whitehall Jewelers, Inc.*, 205 U.S. Dist. LEXIS 376 (N.D. Ill. 2005) (crediting as "partial disclosures of prior misrepresentations and omissions" the company's issuance of a press release announcing a lawsuit, a SEC and a DOJ investigation against the defendants); *and In re Motorola Sec. Lit.*, 2007 U.S. Dist. LEXIS 9530 (N.D. Ill. February 8, 2007) (finding that the language of *Dura* "suggests that a disclosure sufficient to satisfy loss causation can occur in ways other than an announcement that points directly to a previous representation and proclaims its falsity.")

[43] Campbell, Lo and MacKinlay, *The Econometrics of Financial Markets*, 1997, pp. 163-166.

[44] Cornell and Morgan, "Using Finance Theory to Measure Damages in Fraud on the Market Cases," *UCLA Law Review*, June 1990, pp. 899-900; Koslow, "Estimating Aggregate Damages in Class Action Litigation Under Rule 10b-5 for Purposes of Settlement," *Fordham Law Review*, April 1991, pp. 819-825; and Finnerty and Pushner, "An Improved Two-Trader Model for Estimating Damages in Securities Fraud Class Actions," *Stanford Journal of Law, Business and Finance*, 2003, pp. 218-221.

Rebuttal Report of Scott D. Hakala, Ph.D., CFA   *35*
CONFIDENTIAL

reports and plenty of evidence to the contrary, as noted in the Hakala Expert Report.[45] A more plausible explanation for why certain of CSFB's AOL reports appear not to have increased AOL's share price is that they were reiterations of previously disclosed or widely known information and, as Professor Stulz correctly noted, analyst reports that merely reiterate prior analyst reports or contain information already known or disclosed by others are not likely to cause the stock price of AOL Time Warner to change. This, however, does not defeat loss causation or materiality.[46]

52. Finally, Professor Stulz apparently disputes the percentage decline method for measuring inflation per share over time (Stulz Report ¶¶80-91). He provides this criticism without a single academic reference of support, ignoring the fact that the stock price models underlying event studies are based on percentage (not dollar changes), and

---

[45] For example, the Hakala Expert Report shows that there were statistically significant increases in AOL Time Warner's share price on February 5, 2001 and September 18 and 19, 2001, which Professor Stulz does not appear to dispute, and these increases are connected, at least in part, with analyst reports issued by CSFB.

[46] The failure of a stock price to increase when an analyst report merely repeats or reiterates positive but false and/or misleading statements in prior reports and does not unexpectedly change a stock recommendation is not dispositive as to market impact and loss causation. Cornell and Morgan, Ibid., pp. 907-909; See, for example, *Nathenson v. Zonagen*   267 F.3d 400; 2001 U.S. App. LEXIS 20902 US Fifth Circuit, September 25, 2001 ("We also realize that in certain special circumstances public statements falsely stating information which is important to the value of a company's stock traded on an efficient market may affect the price of the stock even though the stock's market price does not soon thereafter change. For example, if the market believes the company will earn $1.00 per share and this belief is reflected in the share price, then the share price may well not change when the company reports that it has indeed earned $1.00 a share even though the report is false in that the company has actually lost money (presumably when that loss is disclosed the share price will fall"). See, also, *Phillips v. Scientific-Atlanta, Inc.,* 2007 U.S. Dist. LEXIS 66282 (N.D. Ga., September 7, 2007), "Contrary to Defendants' argument, the mere absence of a statistically significant increase in the share price in response to fraudulent information does not "sever the link" between the material misstatements and the price of the stock. Rather, price stability may just as likely demonstrate the market consequence of fraud where the alleged fraudulent statement conveys that the company has met market expectations, when in fact it has not. … Thus, even in the absence of demonstrated increase in share price resulting from fraudulent statements, a plaintiff may recover under a fraud on the market theory if that plaintiff can show that negative truthful information which causes a decrease in share price is related to an allegedly false positive statement made earlier, and that it is more probable than not that it was this negative statement, and not some other factor, that caused a significant amount of the decline."

by discounting the support for such an approach in the academic literature.[47] In fact,

frequent "jumps" associated with the "jump-diffusion model" of stock price movements

are commonly discussed in numerous academic papers and are important in properly

modeling the event study process.[48] For this reason, the percentage decline method of

---

[47] Despite this lack of support, his arguments have repeatedly been asserted by other experts who, like Professor Stulz, are affiliated with Cornerstone, and they have been repeatedly discredited or rejected.

[48] See, for example, Ryan and Taffler, "Are Economically Significant Stock Returns and Trading Volumes Driven by Firm-specific News Releases?" *Journal of Business Finance & Accounting*, Vol. 31(1) & (2), January/March 2004, pp. 49-82 (finds that news events explain most of the variance in stock price movements and increases in trading volume over time for UK stocks); Nimalendran, "Estimating the Effects of Information Surprises and Trading on Stock Returns Using a Mixed Jump-Diffusion Model," *Review of Financial Studies*, Fall 1994, p. 469, "Event studies are used to evaluate the economic impact of specific events. Traditional approaches analyze the abnormal returns around the announcement dates to determine the economic impact on securities. In addition, hypotheses tests are based on statistics derived under the assumption that returns are normally distributed. However, many researchers have documented that the probability distribution of daily stock returns deviate substantially from normality, and the price path consists of significant discrete jumps. Incorrectly modeling the underlying price process may lead to inconsistent test statistics and biased inferences. In addition to the incorrect specification of the underlying process for stock prices, the standard framework which looks at only the abnormal returns around announcements ignores the economic effects of trading by informed agents prior to the announcements. Previous studies that use cumulative abnormal returns pool both the announcement effects and trading effects and lead to loss of information and inefficient estimators." And pp. 451-454, 461, and 468-469, state, respectively: "I find that for more than 93 percent of the firms in our sample the mixed jump-diffusion model is statistically superior to the pure diffusion model in describing stock returns."; "Many studies have evaluated the robustness of the estimators with respect to the theoretical and statistical assumptions underlying the methodology. The general finding is that the specification, power, and efficiency of the estimators are seriously compromised if (i) the event date is incorrectly specified, (ii) there is significant change in volatility, or (iii) the underlying stochastic process is not correctly modeled. In addition, traditional event-study methodology does not model the process by which private information is incorporated into prices through strategic trading."; "The jump-diffusion model has several advantages over a traditional event-study method, particularly for events with multiple announcements. First, Akgiray and Booth (1987), Ball and Torous (1985), and Jarrow and Rosenfeld (1984) find that the mixed jump-diffusion model is superior to a pure diffusion model in describing daily stock price dynamics. Second, public release of unexpected information is generally associated with discrete jumps in process; therefore, a jump-diffusion model is likely to be better than a pure diffusion model in describing stock returns. Finally, separating the jump and diffusion components allows researchers to assess the significance of informed trading around events such as proxy contests and earnings announcements."; "When the economic impact of the event on security prices is small, with an estimator with higher power is always preferable."; "These findings highlight the relative merits of my model over the usual event study method. First, the jump-diffusion model is shown to be statistically superior to the pure diffusion model in describing the underlying price process. Second, one obtains more powerful tests of the economic effects of the event. Finally, one gets additional information about the relative effects of trading versus information in the different estimation periods."; and "Event studies are used to evaluate the economic impact of specific events. Traditional approaches analyze the abnormal returns around the announcement dates to determine the economic impact on securities. In addition, hypotheses tests are based on statistics derived under the assumption that returns are normally distributed. However, many researchers have documented that the probability distribution of daily stock returns deviate substantially from normality, and the price path consists of significant discrete jumps. Incorrectly modeling the underlying price process may lead to inconsistent test statistics and biased inferences. In addition to the incorrect specification of the underlying

modeling stock price movements over time working backwards from the corrective

events is and has been the preferred and primary method in securities litigation of

estimating inflation per share.[49]   Indeed, numerous courts have recognized that this is

conceptually correct.[50]   Thus, there is no academic or economic support for the use of

constant dollar inflation for the type of fraud alleged in this case, but there is substantial

academic and economic support for the use of percentage inflation.   In this context,

Professor Stulz's criticisms (Stulz Report ¶¶80-91) are both devoid of academic or

---

process for stock prices, the standard framework which looks at only the abnormal returns around
announcements ignores the economic effects of trading by informed agents prior to the announcements.
Previous studies that use cumulative abnormal returns pool both the announcement effects and trading
effects and lead to loss of information and inefficient estimators."; Higgins, "Power of One and Two
Sample T-Statistics Given Event-Induced Variance Increases and Non-normal Stock Returns: A
Comparative Study," *Quarterly Journal of Business and Economics*, Winter 1998, "These variance
increases can cause problems when using the traditional one sample t-statistic to test for abnormal returns.
One sample t-statistic will reject the null hypothesis of no abnormal returns too often when there are
variance increases around an event." and "As Lehmann notes, the t-statistic is optimal only when the
underlying sample distribution is normal. Therefore, when the underlying sample distribution is non-
normal, the performance of the t-statistic becomes an empirical question." (emphasis added, the point of the
article is the need to control for events and the effect of events causing the standard errors to be overstated
and statistical significance understated); and Franses, *Time Series Models for Business and Economic
Forecasting*, 1998, pp. 128-130.

[49] *Supra*, footnote 39.

[50] See, for example, *In re Broadcom Sec. Lit.*, 2005 U.S. Dist. LEXIS 41976 (C.D. Cal., September 12,
2005) (Approval of plan of allocation over objections, "Dura acknowledged that loss causation, like
proximate cause in tort cases, is highly fact-specific…It has long been recognized and accepted that market
forces can act on a fraud and can increase or decrease artificial inflation even without company-specific
corrective disclosures. Moreover, there are a variety of ways that inflated value can be dissipated short of
corrective disclosures, as [the objector] uses that term. Dissipation may flow, for example, from 'a growing
quiet awareness on the part of certain highly sophisticated market participants - arbitrageurs and sell-side
analysts - that previously publicly available fact, which for a time ... seemed unimportant, were in fact
inconsistent with the misstatements.'"); *Montoya v. Mamma Co., Inc.*, 2006 U.S. Dist. LEXIS 13207
(S.D.N.Y., March 28, 2006); *In re BearingPoint Sec. Lit.*, 2006 U.S. Dist. LEXIS 1718 (E.D. Va., January
17, 2006); *In re Rent-Way Securities Litigation, 218 F.R.D. 101, 119 (W.D. Pa. 2003)* ("The degree of
price inflation on any given day during the class period may well differ from the degree of inflation on a
different day during the same period."); *In re IPO Sec. Lit.*, 358 F. Supp. 2d 189 (S.D.N.Y., October 15,
2004) ("Second, there can be a market correction, where ordinary market forces affect the rate of artificial
inflation. If, for example, the normal functioning of the securities market causes the inflationary effect to
dissipate over time, a customer who buys and sells at inflated prices will still suffer a loss based on the
inflated price at the time of purchase so long as the price was less inflated at the time of sale."); *In re
Seagate Technologies II Sec. Lit.*, 843 F. Supp. 1341 (N.D. Cal., 1994); *Wool v. Tandem Computers, Inc.*,
818 F.2d 1433 (9th Cir. 1987); and *Green v. Occidental Petroleum Corp.,* 541 F.2d 1335, 1345 (9th Cir.
1976) (Sneed, J., concurring)

scientific support, provably wrong and have been repeatedly rejected by other experts in the field and certain courts.

53. Although I believe the percentage drop method is appropriate in this case, as an aid to the Court and to allow a comparison of methods, I have prepared and attached as exhibits to this report alternative versions of Exhibits C-1a and C-2a which provide the constant dollar/dollar drop alternatives to the percentage inflation methodology set forth in those exhibits in the Hakala Expert Report and the Limited versions of those exhibits in this rebuttal report.

54.   I expect to review additional materials and may consider additional information brought to my attention after issuing this report. I expect to consider and respond to such information and will adjust the conclusions in this report, if such information suggests a need for change in my opinions or calculations is warranted.

Executed this 17th day of July 2008 at Dallas, Texas. I declare under penalty of perjury that the foregoing is true and correct.

_____
Scott D. Hakala, Ph.D., CFA